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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/658,597	09/11/2000	Steven P. Larky	0325.00418 CD117	4974
21363	7590	07/15/2004	EXAMINER	
CHRISTOPHER P. MAIORANA, P.C.			WEST, JEFFREY R	
24840 HARPER			ART UNIT	PAPER NUMBER
ST. CLAIR SHORES, MI 48080			2857	

DATE MAILED: 07/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/658,597

Applicant(s)

LARKY ET AL.

Examiner

Jeffrey R. West

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 September 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. In view of the Appeal Brief filed on April 08, 2004, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Catalyst Enterprises, Inc., "SBAE-10" Bus Analyzer-Exerciser User's Manual and Analyzer/Exerciser/Tester specification sheet (henceforth "Catalyst") in view of U.S. Patent No. 5,177,630 to Goutzoulis et al. and U.S. Patent No. 5,959,911 to Krause et al.

Catalyst discloses an apparatus coupled between a host computer, acting as a low speed tester, and a USB device under test (User's Manual, page 6) wherein the apparatus is configured to allow the tester to perform tests of the device at higher or lower speeds, as needed. (Specification Sheet, page 1, columns 1 and 2 and User's Manual, pages 1 and 24). Catalyst discloses that the apparatus, interfaced with the USB device, can either emulate the host or the device (Specification Sheet, page 1, line 3). Catalyst discloses using the tester through the apparatus to control the transmission, reception (i.e. input and output), and verification of the USB device operation and using the apparatus to test these operations and indicating the results as a pass/fail signal with respect to the USB compliance specifications (Specification Sheet, page 1, column 1 and User's Manual, page 2).

Catalyst also teaches a tester function to control the apparatus/host emulator to initiate test packets for a transmission/reception loop as well as verifying the packets or forcing packet errors to the USB device for correct operation verification (User's Manual, page 33 and pages 39-40). Finally, Catalyst discloses that the apparatus is configured to perform one a plurality of test modes (User's Manual, pages 17-18) over a USB 1.x or 2.0 environment (Specification Sheet, page 1, lines 1-2).

Further, while the invention of Catalyst teaches performing full and low-speed testing of the device under test by receiving first signals from the low-speed tester over a parallel connection to the host emulator which performs the low and full-speed testing of the device under test over a USB connection (Catalyst, User's Manual, page 6), Catalyst does not explicitly state that the emulator transmits test

data at a second speed faster than the first speed received from the low-speed tester. However, due to the well-known maximum data transfer rates of parallel ports, USB ports and the requirements of low and full-speed testing, it is considered inherent that the speed of the test data transmitted by the host emulator to perform the low and full-speed testing must be faster than the test data sent from the low speed tester because a parallel port cannot transmit data at a speed fast enough to perform the low and full-speed testing.

As noted above, the invention of Catalyst teaches all the features of the claimed invention except for including a test vector generator for generating test vectors for controlling the testing speed of the apparatus and including two separate interfaces between the low speed tester and the host emulator.

Goutzoulis et al. teaches a method and apparatus for generating and transferring high speed data for high speed testing applications by generating and transferring low-speed input vectors (i.e. vectors at a first speed) to the test device which triggers specific components to adjust the delay (column 2, line 60 to column 3, line 7) and generate high-speed test vectors (i.e. vectors at a second speed faster than said first speed) for transferring the high-speed test vectors to a digital DUT (column 2, lines 50-54).

Krause teaches an apparatus and method for implementing a bank interlock scheme and related test mode for multi-bank memory devices including data lines for transmitting read and write data (column 2, lines 49-59), wherein the read and

write lines can either be implemented as separate lines with separate interfaces or a bi-directional line with one interface (column 3, lines 13-15).

It would have been obvious to one having ordinary skill in the art to modify the invention of Catalyst to include a test vector generator for generating test vectors because while Catalyst describes a system wherein the speed of the device under test is automatically determined, Catalyst does not provide the corresponding method for performing this adjusted high-speed testing. Therefore, the combination of Catalyst and Goutzoulis, as suggested by Goutzoulis, would have provided method for producing the high speed vectors required by Catalyst in a method that applies for very high speed devices, provides necessary tester interconnections, and allows precise control of required DUT input time delays (column 2, lines 25-30 and column 3, lines 8-13).

Further, it would have been obvious to one having ordinary skill in the art to modify the invention of Catalyst to include two separate interfaces between the low speed tester and the host emulator, as taught by Krause, because Krause suggests that separate interfaces are well-known equivalences to bi-directional interfaces (column 3, lines 13-15) and therefore one having ordinary skill in the art would recognize the motivation to use whichever type of device is most readily available. Further, the combination would have reduced a possibly of data collision between the low-speed tester and the host emulator both sending data to each other at the same time, by providing distinct interfaces for handing each type of data transmission.

Further still, it would have been obvious to one having ordinary skill in the art at the time the invention was made to separate the single bi-directional interface into two separate interfaces since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179 and therefore, one having ordinary skill in the art would have been motivated to reduce the required complexity of the system by separating a bi-directional interface, that would have to be able to handle and route both data received from the low-speed tester as well as data from the emulator for transmission to the low-speed tester, into two separate distinct interfaces.

Response to Arguments

4. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection. The following arguments, however, are noted by the Examiner.

Applicant first argues, "[t]he Examiner asserts that it would have been obvious to combine Goutzoulis with Catalyst 1 and Catalyst 2 to cause a first USB between a personal computer (PC) and a host SBAE-10 of Catalyst 1 and Catalyst 2 to operate at a first speed and a second USB between the host SBAE-10 and an exercised SBAE-10 of Catalyst 1 and Catalyst 2 to operate at a second speed faster than the first speed. However, the Examiner fails to state if the proposed combination slows the first speed for the first USB and/or increases the second speed for the second USB." Applicant then proceeds to argue against the first modification for slowing the

first speed since "one of ordinary skill in the art would appear not to have any realistic motivation for modifying Catalyst 1 and Catalyst 2 to **intentionally decrease a performance** of the first USB between the PC and the host SBAE-10 relative to the second USB", and argues against the second modification for increasing the second speed since "the proposed modified host SBAE-10 would appear to transfer data on the second USB at a speed that is (i) faster than the data was received from the first USB and thus (ii) faster than the USB 1.1 standard."

The Examiner maintains that, similar to the position presented in the Advisory Action mailed January 22, 2004, the invention of Catalyst and Goutzoulis does not suggest the inclusion of any further USB devices requiring the addition of further complexity.

For example, Catalyst User's Manual, page 6, shows a PC acting as a low-speed tester, a SBAE-10 device acting as a host emulator, and a USB device exercised/tested. There is no USB between the PC and the host SBAE-10, nor is there a second USB between the host SBAE-10 and the exercised USB device. The invention of Catalyst further discloses a system wherein the speed of the device under test is automatically determined but does not provide the corresponding method for performing this adjusted high-speed testing. Goutzoulis et al. is then included to teach a method and apparatus for generating and transferring high speed data for high speed testing applications by transferring low-speed input vectors (i.e. vectors at a first speed) to the testing device which triggers specific components to adjust the delay (column 2, line 60 to column 3, line 7) and generate

Art Unit: 2857

high-speed test vectors (i.e. vectors at a second speed faster than said first speed) for transferring the high-speed test vectors to a digital DUT (column 2, lines 50-54).

Since this combination does not require or suggest any additional USB devices as Applicant interprets, these arguments are not considered persuasive and the corresponding rejection is considered to be proper.

Applicant argues that "[t]he claims of group 1 further provide a low speed tester performing high speed tests of a device at a second speed. In contrast, Catalyst 1 and Catalyst 2 each appear to be silent regarding the PC of Catalyst 1 operating at a low speed relative to the high speed testing of the exercised SBAE-10."

The Examiner has modified the ground of rejection to further explain that this is an inherent feature.

Applicant also argues that "[t]he Examiner does not provide[d] clear and particular motivation to combine Catalyst 1 and Catalyst 2 with Goutzoulis" since "no evidence is provided that (i) 'high speed vectors' faster than the USB 1.1 standard are 'required by Catalyst', (ii) the exercised SBAE-10 is a 'very high speed device' or that (iii) the second USB must allow for 'precise control of required DUT input time delays', meaning 'picosecond-type accuracy' per Goutzoulis."

The Examiner maintains that, as noted above, the invention of Catalyst does disclose the need for high-speed data in order to successfully test the USB device at its higher speed.

Further, the Examiner asserts that the proposed motivation of tester interconnections and precise control would be desired in order provide a connection able to handle the test data to avoid data loss or distortion as well as provide accurate control to meet the exact data rate required by the device under test.

Applicant further argues, that "[t]he claims of group 4 provide a device (under test) configured to transmit one or more test packets" and "Catalyst 1, Catalyst 2 and Goutzoulis each appear to be silent regarding the exercised SBAE-10 and/or device under test being configured to transmit test packets."

The Examiner maintains that Catalyst includes a packet transmission and reception loop for sending user-defined packets to the device and receiving acknowledgement packets from the device (User's Manual, pages 32-33 and pages 39-40)

Applicant further argues, that "[t]he claim of group 5 further provides a low speed tester configured to generate a pass/fail signal" and the Examiner's cited sections fail to teach this feature because "the Examiner asserts that the host SBAE-10 of Catalyst 1 is similar to the claimed **host emulator**. Therefore, Catalyst 1 does not appear to contemplate an element similar to the claimed **low speed tester** generating a pass/fail type signal."

The Examiner maintains that the section cited by Applicant states "This option allows you to measure inrush current over the first 10 milliseconds of device

activation and displays a pass/fail result with respect to the USB compliance specifications" and therefore the processing components of the PC/low speed tester generate a pass/fail signal to the monitor/display.

Applicant also states that the Examiner's assertion that "Catalyst appears to provide test data to a user leaving the user to decide pass or fail" is misguided since "a user of the PC of Catalyst 1 does not appear to be part of the PC (asserted to be similar to the claimed low speed tester). Furthermore, a decision made by a user does not appear to generate a signal."

The Examiner asserts that as noted above, the invention of Catalyst has already been shown to generate a pass/fail signal. The Examiner also maintains that a data signal generated by the PC/low speed tester processing components that is sent to a display to indicate to a user whether a device passes or fails is considered to be a pass/fail signal.

Applicant also disagrees with the Examiners statement that "the pass/fail signal claim language is being 'interpreted as **test data** that indicates whether the device passes or fails" because "[t]he Examiner does not appear to be using the one-of-ordinary-skill-in-the-art standard in interpreting the pass/fail signal claim language."

Although this argument is rendered moot in view of the foregoing discussion, the Examiner does assert that an Examiner's interpretation is a valid consideration since the Examiner must ascertain what would have been obvious to one of ordinary skill in the art at the time the invention was made, and not to the inventor, a judge, a layman, those skilled in remote arts, or to geniuses in the art at hand when

Art Unit: 2857

evaluation the prior art. (Environmental Designs, Ltd. v. Union Oil Co., 713 F.2d 693, 218 USPQ 865 (Fed. Cir. 1983), cert. denied, 464 U.S. 1043 (1984)).

Applicant further argues, that "[t]he claims of group 6 provide performing at least one test of a plurality of test modes wherein the plurality of test modes comprise USB 2.0 defined test modes for use in a production environment. In contrast, Catalyst 1, Catalyst 2 and Goutzoulis each appear to be silent regarding USB 2.0 defined test modes."

The Examiner maintains that since the invention of Catalyst clearly indicates that the SBAE-10 is intended to be used in both USB 1.x and 2.0 environments (Specification Sheet, page 1, lines 1-2 and "Versatile") Catalyst meets the invention as claimed.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

"USB Info: Frequently Asked Questions" teaches the relative speeds between low testing, full testing, USB cables, and parallel ports.

6. Any inquiry concerning this communication or earlier communications from the

Art Unit: 2857

examiner should be directed to Jeffrey R. West whose telephone number is (703)308-1309. The examiner can normally be reached on Monday through Friday, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (703)308-1677. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7382 for regular communications and (703)308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

jrw
July 6, 2004


MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800